

**CHIRP-BASED METHOD AND APPARATUS FOR PERFORMING  
PHASE CALIBRATION ACROSS PHASED ARRAY ANTENNA**

**ABSTRACT**

A chirp-based method and apparatus measures phase variation through a reference frequency transport cable for a phased array antenna. A chirp is injected into the signal transport path from a remote transmit/receive portion of the antenna, so that the chirp is conveyed over the signal path, reflected from an upstream bandpass filter at a local transmit/receive portion of the antenna, and returned to a remote transmit portion of the antenna. Energy in the returned chirp is extracted by a downstream bandpass filter and correlated in a delay lock loop with energy in an auxiliary chirp signal, that is delayed relative to the injected chirp. The delay of the auxiliary chirp is adjusted to maximize the correlation output and provide an indication of the delay through the signal path.